

# PATENT SPECIFICATION

NO DRAWINGS.

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## COMPLETE SPECIFICATION.

### Improvements in Polyester Textile Stiffeners.

We, IMPERIAL CHEMICAL INDUSTRIES LIMITED, of Imperial Chemical House, Millbank, London, S.W.1, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in the manufacture of plastics stiffeners for textile articles, for example collar stiffeners, and to the textile stiffeners thereby produced. In particular it relates to the manufacture of such stiffeners from polyethylene terephthalate.

Stiffeners of the type referred to above are normally produced from polyethylene terephthalate sheet or film of the required thickness by stamping with a cutter of the required dimensions. A high degree of local shear is developed during this process and fibrillation and delamination tends to occur in the vicinity of the cut edges. It is an object of this invention to overcome the above defect.

Accordingly, the present invention provides a process for making textile stiffeners by stamping out the stiffeners from polyethylene terephthalates, the improvement in which consists in using polyethylene terephthalate containing between 0.25 and 10.0% by weight of inert particles of between 0.1 and 10 microns average particle size.

As a further embodiment of the invention we provide a process for making textile stiffeners which comprises stamping the stiffeners out from polyethylene terephthalate containing between 0.25 and 10.0% by weight of inert particles of between 1 and 10 microns average particle size.

We have found that if stiffeners are stamped out from film containing less than 0.25% of

inert particles fibrillation is not prevented; film suitable for the production of textile stiffeners and containing more than 10% of such particles cannot conveniently be produced.

By "inert particles" we mean substances that are substantially insoluble in water, unaffected by exposure to the atmosphere and moisture and undergo no chemical reaction with polyethylene terephthalate even at temperatures up to 300° C. The inert particles are suitable for incorporation into the polymer or the polymer-forming reactants before the polymer is converted into film by the conventional method of melt extrusion.

Very suitable inert particulate materials are titanium dioxide, silicates or silico-aluminates such as china clay. Our preferred inert particulate materials are china clays with particle sizes in the range 1 to 10 microns and titanium dioxide with particle sizes in the range 0.1 to 0.6 microns.

The polyethylene terephthalate film containing the inert particles may be oriented in either one or both directions in the plane of the film; preferably it is biaxially oriented by stretching the amorphous film made in known manner at a temperature above its second order transition temperature in each of two mutually perpendicular directions. The oriented film is preferably heat set by heating it under tension at a temperature of from 150—250° C, whereby its dimensional stability at high temperatures is improved.

As mentioned above, the inert particulate material may be incorporated in the polymer-forming reactants. In this preferred case the particles of inert material are ball milled with ethylene glycol and the suspension produced added to the ethylene glycol and di-

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8. Textile stiffeners whenever made by a process according to any of the preceding claims.

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Agent for the Applicants.

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